CLAIM AMENDMENTS

1. (currently amended) A transcoder, comprising:

an input that receives a first signal having a first signal type ~~from a first functional block~~;

a transcoder functional block that transforms the first signal having the first signal type thereby generating a second signal having a second signal type, wherein the transcoder functional block includes:

a satellite receiver that is operative to decode the first signal having the first signal type;

a modulator, connected to an output of the satellite receiver, that is operative to modulate decoded output from the satellite receiver; and

a DAC (Digital to Analog Converter), connected to an output of the modulator, that is operative to transform the second signal having the second signal type from a digital signal into an analog signal;

an output that transmits the second signal having the second signal type ~~to a second functional block~~;

wherein the first signal type includes ~~at least one~~ a first modulation, a first code rate, a first symbol rate, and a first data rate; and

wherein the second signal type includes at least one of a second modulation, a second code rate, a second symbol rate, and a second data rate.

2. (original) The transcoder of claim 1, wherein:

the first signal type is a turbo coded signal that includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 21.5 Msps (Mega-symbols per second), and a data rate of approximately 41 Mbps (Mega-bits per second); and

the second signal type includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 7/8, a symbol rate of approximately 20 Msps, and a data rate of approximately 32.25 Mbps.

3. (original) The transcoder of claim 1, wherein:

the first signal type is an LDPC (Low Density Parity Check) coded signal that includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 20 Msps (Mega-symbols per second), and a data rate of approximately 40 Mbps (Mega-bits per second); and

the second signal type includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 6/7, a symbol rate of approximately 20 Msps, and a data rate of approximately 30.5 Mbps.

4. (original) The transcoder of claim 1, wherein:

the transcoder functional block is implemented within an integrated circuit.

5. (currently amended) The transcoder of claim 4, wherein:

the transcoder functional block includes a first functional block and the second functional block; and

the first functional block and the second functional block are functional blocks within the integrated circuit.

6. (currently amended) The transcoder of claim 4, wherein:

the first functional block is ~~a~~ the the satellite receiver that is operative ~~operable~~ to decode the first signal having the first signal type; and

the second functional block includes ~~a~~ the modulator and ~~a~~ the DAC ~~(Digital to Analog Converter)~~ that is operative ~~operable~~ to transform the second signal having the second signal type from ~~a~~ the digital signal into ~~an~~ the analog signal.

7. (currently amended) The transcoder of claim 4, wherein:

the first functional block includes a transport processor that includes a PID (Program Identification) filtering functional block, a PCR (Program Clock Reference) time stamp correction functional block, and a null packet insertion functional block;

the PID filtering functional block is operative ~~operable~~ to throw away data in the first signal having the first signal type;

the PCR time stamp correction functional block is operative ~~operable~~ to keep a time base of the first signal having the first signal type constant;

the null packet insertion functional block is operative ~~operable~~ to insert null packets into the second signal having the second signal type thereby ensuring a constant data rate of the second signal having the second signal type; and

the second functional block includes ~~a~~ the modulator and ~~a~~ the DAC ~~(Digital to Analog Converter)~~ that is operative ~~operable~~ to transform the second signal having the second signal type from ~~a~~ the digital signal into ~~an~~ the analog signal.

8. (original) The transcoder of claim 7, wherein:

the transport processor is an MPEG-2 (Motion Picture Expert Group, level 2) transport processor.

9. (currently amended) The transcoder of claim 1, wherein:

the transcoder is implemented as at least one of a one to many transcoder, a uni-directional transcoder, and a bi-directional transcoder;

the one to many transcoder is operative ~~operable~~ to transform the first signal having the first signal type thereby generating the second signal having the second signal type and a third signal having the third signal type;

the uni-directional transcoder is operative ~~operable~~ to transform the first signal having the first signal type thereby generating the second signal having the second signal type when communicating in a first direction with respect to the transcoder;

the bi-directional transcoder is operative ~~operable~~ to transform the first signal having the first signal type thereby generating the second signal having the second signal type when information is communicated in a first direction with respect to the transcoder; and

the bi-directional transcoder is also operative ~~operable~~ to transform ~~the~~ a fourth signal having ~~the~~ a fourth signal type thereby generating ~~the~~ a fifth signal having ~~the~~ a fifth signal type when information is communicated in a second direction with respect to the transcoder.

10. (original) The transcoder of claim 1, wherein:

the transcoder is implemented within at least one of a satellite communication system, an HDTV (High Definition Television) communication system, a cable television system, and a cable modem communication system.

11. (original) The transcoder of claim 1, wherein:

the transcoder functional block includes a DVB (Digital Video Broadcasting) encoder/modulator that ensures that the second signal having the second signal type is a DVB STB (Set Top Box) compatible signal.

12. (currently amended) The transcoder of claim 1, wherein:

the transcoder functional block includes a first functional block and the second functional block;

a satellite signal, being a turbo coded signal and having an 8 PSK (Phase Shift Keying) modulation type, that is provided to a CMOS (Complementary Metal Oxide Semiconductor) satellite tuner that is operative ~~operable~~ to perform tuning and down-converting of the satellite signal to generate an analog baseband signal having I, Q (In-phase, Quadrature) components;

the first functional block is an 8 PSK (Phase Shift Keying) turbo code receiver;

the analog baseband signal is provided to the 8 PSK turbo code receiver that is operative ~~operable~~ to decode the analog baseband signal thereby generating a decoded baseband signal;

the analog baseband signal is the first signal having the first signal type that is provided to the transcoder functional block;

the transcoder functional block includes a DVB (Digital Video Broadcasting) encoder/modulator that is operative ~~operable~~ to transform the first signal having the first signal type thereby generating the second signal having the second signal type;

the second functional block includes ~~a~~ the modulator and ~~a~~ the DAC ~~(Digital to Analog Converter)~~ that is operative ~~operable~~ to transform the second signal having the second signal type from ~~a~~ the digital signal into an analog IF (Intermediate Frequency) signal;

an up-converter functional block that is operative ~~operable~~ to up-convert the analog IF signal to an L-band signal having a frequency in a range of 950 MHz to 2150 MHz; and

the L-band signal is a DVB STB (Set Top Box) compatible signal.

13. (currently amended) The transcoder of claim 12, further comprising:

a microcontroller or a state machine, connected to each of the satellite receiver and the modulator, that is operative ~~operable~~ to coordinate the communication and control of a Set Top Box (STB), to which the transcoder is communicatively coupled, and an LNB (Low Noise Block Converter) of a satellite dish to which the transcoder is also communicatively coupled.

14. (original) The transcoder of claim 13, further comprising:

a first transceiver that interfaces the microcontroller or a state machine to the LNB; and

a second transceiver that interfaces the microcontroller or a state machine to the STB.

15. (original) The transcoder of claim 14, wherein:

each of the first transceiver and the second transceiver is a DiSEqC (Digital Satellite Equipment Control) transceiver.

16. (currently amended) A transcoder, comprising:

an input that receives a first signal ~~from a first functional block~~;

wherein the first signal includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 21.5 Msps (Mega-symbols per second), and a data rate of approximately 41 Mbps (Mega-bits per second);

a transcoder functional block that transforms the first signal thereby generating a second signal, wherein the transcoder functional block includes:

a satellite receiver that is operative to decode the first signal;

a modulator, connected to an output of the satellite receiver, that is operative to modulate decoded output from the satellite receiver; and

a DAC (Digital to Analog Converter), connected to an output of the modulator, that is operative to transform the second signal from a digital signal into an analog signal;

an output that transmits the second signal ~~to a second functional block~~; and

wherein the second signal includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 7/8, a symbol rate of approximately 20 Msps, and a data rate of approximately 32.25 Mbps.

17. (original) The transcoder of claim 16, wherein:

the transcoder functional block includes a DVB (Digital Video Broadcasting) encoder/modulator that ensures that the second signal having the second signal type is a DVB STB (Set Top Box) compatible signal.

18. (currently amended) The transcoder of claim 16, wherein:

the transcoder functional block includes a first functional block and the second functional block;

the first functional block includes a ~~the~~ CMOS (Complementary Metal Oxide Semiconductor) satellite tuner;

the transcoder functional block includes an 8 PSK (8 Phase Shift Key) turbo code receiver and a DVB (Digital Video Broadcasting) encoder/modulator;

the second functional block includes ~~a~~ the DAC ~~(Digital to Analog Converter)~~;

a satellite signal, being a turbo coded signal and having an 8 PSK modulation type, is provided to the CMOS satellite tuner that is operative ~~operable~~ to perform tuning and down-converting of the satellite signal to generate an analog baseband signal having I, Q (In-phase, Quadrature) components;

the analog baseband signal is the first signal;

the analog baseband signal is provided from the CMOS satellite tuner to the 8 PSK turbo code receiver that is operative ~~operable~~ to decode the analog baseband signal thereby generating a decoded baseband signal;

the DVB encoder/modulator receives the decoded baseband signal and generates a digital DVB signal;

the digital DVB signal is the second signal;

the DAC (Digital to Analog Converter) is operative ~~operable~~ to transform the second signal from ~~a~~ the digital signal into an analog IF (Intermediate Frequency) signal;

an up-converter functional block that is operative ~~operable~~ to up-convert the analog IF signal to an L-band signal having a frequency in a range of 950 MHz to 2150 MHz; and

the L-band signal is a DVB STB (Set Top Box) compatible signal.

19. (currently amended) The transcoder of claim 18, further comprising:

a microcontroller or a state machine, connected to each of the satellite receiver and the modulator, that is operative ~~operable~~ to coordinate the communication and control of a STB (Set Top Box), to which the transcoder is communicatively coupled, and an LNB (Low Noise Block Converter) of a satellite dish to which the transcoder is also communicatively coupled.

20. (original) The transcoder of claim 19, further comprising:

a first transceiver that interfaces the microcontroller or a state machine to the LNB; and

a second transceiver that interfaces the microcontroller or a state machine to the STB.

21. (original) The transcoder of claim 20, wherein:

each of the first transceiver and the second transceiver is a DiSEqC (Digital Satellite Equipment Control) transceiver.

22. (original) The transcoder of claim 16, wherein:

the first signal is a turbo coded signal.

23. (currently amended) A transcoder, comprising:

an input that receives a first signal ~~from a first functional block~~;

wherein the first signal includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 20 Msps (Mega-symbols per second), and a data rate of approximately 40 Mbps (Mega-bits per second);

a transcoder functional block that transforms the first signal thereby generating a second signal, wherein the transcoder functional block includes:

a satellite receiver that is operative to decode the first signal;

a modulator, connected to an output of the satellite receiver, that is operative to modulate decoded output from the satellite receiver; and

a DAC (Digital to Analog Converter), connected to an output of the modulator, that is operative to transform the second signal from a digital signal into an analog signal;

an output that transmits the second signal ~~to a second functional block~~; and

wherein the second signal includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 6/7, a symbol rate of approximately 20 Msps, and a data rate of approximately 30.5 Mbps.

24. (original) The transcoder of claim 23, wherein:

the transcoder functional block includes a DVB (Digital Video Broadcasting) encoder/modulator that ensures that the second signal having the second signal type is a DVB STB (Set Top Box) compatible signal.

25. (currently amended) The transcoder of claim 23, wherein:

the transcoder functional block includes a first functional block and the second functional block;

the first functional block includes a ~~the~~ CMOS (Complementary Metal Oxide Semiconductor) satellite tuner;

the transcoder functional block includes an 8 PSK (8 Phase Shift Key) LDPC (Low Density Parity Check) code receiver and a DVB (Digital Video Broadcasting) encoder/modulator;

the second functional block includes ~~a~~ <u>the</u> DAC ~~(Digital to Analog Converter)~~;

a satellite signal, being an LDPC coded signal and having an 8 PSK modulation type, is provided to the CMOS satellite tuner that is <u>operative</u> ~~operable~~ to perform tuning and down-converting of the satellite signal to generate an analog baseband signal having I, Q (In-phase, Quadrature) components;

the analog baseband signal is the first signal;

the analog baseband signal is provided from the CMOS satellite tuner to the 8 PSK LDPC code receiver that is <u>operative</u> ~~operable~~ to decode the analog baseband signal thereby generating a decoded baseband signal;

the DVB encoder/modulator receives the decoded baseband signal and generates a digital DVB signal;

the digital DVB signal is the second signal;

the DAC (Digital to Analog Converter) is <u>operative</u> ~~operable~~ to transform the second signal from a digital signal into an analog IF (Intermediate Frequency) signal;

an up-converter functional block that is <u>operative</u> ~~operable~~ to up-convert the analog IF signal to an L-band signal having a frequency in a range of 950 MHz to 2150 MHz; and

the L-band signal is a DVB STB (Set Top Box) compatible signal.

26. (currently amended) The transcoder of claim 25, further comprising:

a microcontroller or a state machined<u>, connected to each of the satellite receiver and the modulator,</u> that is <u>operative</u> ~~operable~~ to coordinate the communication and control of a STB (Set Top Box), to which the transcoder is communicatively coupled, and an LNB (Low Noise Block Converter) of a satellite dish to which the transcoder is also communicatively coupled.

27. (original) The transcoder of claim 26, further comprising:

a first transceiver that interfaces the microcontroller or a state machine to the LNB; and

a second transceiver that interfaces the microcontroller or a state machine to the STB.

28. (original) The transcoder of claim 27, wherein:

each of the first transceiver and the second transceiver is a DiSEqC (Digital Satellite Equipment Control) transceiver.

29. (original) The transcoder of claim 23, wherein:

the first signal is an LDPC coded signal.

30-67. (canceled)

68. (currently amended) A transcoding processing method, the method comprising:

receiving a first signal having a first signal type ~~from a first functional block~~;

transcoding the first signal having the first signal type thereby generating a second signal having a second signal ~~type;~~ type, wherein the transcoding including;

employing a satellite receiver to decode the first signal having the first signal type;

employing a modulator, connected to an output of the satellite receiver, to modulate decoded output from the satellite receiver; and

employing a DAC (Digital to Analog Converter), connected to an output of the modulator, to transform the second signal having the second signal type from a digital signal into an analog signal;

outputting the second signal having the second signal type ~~to a second functional block~~;

wherein the first signal type includes ~~at least one~~ a first modulation, a first code rate, a first symbol rate, and a first data rate; and

wherein the second signal type includes at least one of a second modulation, a second code rate, a second symbol rate, and a second data rate.

69. (original) The method of claim 68, wherein:

the first signal type includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 21.5 Msps (Mega-symbols per second), and a data rate of approximately 41 Mbps (Mega-bits per second); and

the second signal type includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 7/8, a symbol rate of approximately 20 Msps, and a data rate of approximately 32.25 Mbps.

70. (original) The method of claim 69, wherein:

the first signal is a turbo coded signal.

71. (original) The method of claim 68, wherein:

the first signal type is an LDPC (Low Density Parity Check) coded signal that includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 20 Msps (Mega-symbols per second), and a data rate of approximately 40 Mbps (Mega-bits per second); and

the second signal type includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 6/7, a symbol rate of approximately 20 Msps, and a data rate of approximately 30.5 Mbps.

72. (original) The method of claim 71, wherein:

the first signal is a turbo coded signal.

73. (currently amended) The method of claim 68, wherein:

the method is performed using a first functional block and a second functional block;

the first functional block includes ~~a~~ the satellite receiver employed ~~that is operable~~ to decode the first signal having the first signal type; and

the second functional block includes ~~a~~ the modulator and ~~a~~ the DAC employed ~~(Digital to Analog Converter) that is operable~~ to transform the second signal having the second signal type from ~~a~~ the digital signal into ~~an~~ the analog signal.

74. (currently amended) The method of claim 68, wherein:

the method is performed using a first functional block and a second functional block;

the first functional block includes a transport processor that includes a PID (Program Identification) filtering functional block, a PCR (Program Clock Reference) time stamp correction functional block, and a null packet insertion functional block;

the PID filtering functional block is operative ~~operable~~ to throw away data in the first signal having the first signal type;

the PCR time stamp correction functional block is operative ~~operable~~ to keep a time base of the first signal having the first signal type constant;

the null packet insertion functional block is operative ~~operable~~ to insert null packets into the second signal having the second signal type thereby ensuring a constant data rate of the second signal having the second signal type; and

the second functional block includes ~~a~~ the modulator and ~~a~~ the DAC ~~(Digital to Analog Converter)~~ that is operative ~~operable~~ to transform the second signal having the second signal type from ~~a~~ the digital signal into ~~an~~ the analog signal.

75. (original) The method of claim 74, wherein:

the transport processor is an MPEG-2 (Motion Picture Expert Group, level 2) transport processor.

76. (currently amended) A transcoding processing method, the method comprising:

receiving a first signal having a first signal type ~~from a first functional block~~;

wherein the first signal type includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 21.5 Msps (Mega-symbols per second), and a data rate of approximately 41 Mbps (Mega-bits per second)

transcoding the first signal having the first signal type thereby generating a second signal having a second signal ~~type;~~ type, wherein the transcoding including:

employing a satellite receiver to decode the first signal having the first signal type;

<u>employing a modulator, connected to an output of the satellite receiver, to modulate decoded output from the satellite receiver; and</u>

<u>employing a DAC (Digital to Analog Converter), connected to an output of the modulator, to transform the second signal having the second signal type from a digital signal into an analog signal;</u>

wherein the second signal type includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 7/8, a symbol rate of approximately 20 Msps, and a data rate of approximately 32.25 Mbps;

outputting the second signal having the second signal type ~~to a second functional block~~; and

wherein the first signal is a turbo coded signal.

77. (currently amended) The method of claim 76, wherein:

<u>the method is performed using a first functional block and a second functional block;</u>

the first functional block includes ~~a~~ <u>the</u> satellite receiver <u>employed</u> ~~that is operable~~ to decode the first signal having the first signal type; and

the second functional block includes ~~a~~ <u>the</u> modulator and ~~a~~ <u>the</u> DAC ~~(Digital to Analog Converter)~~ that is <u>operative</u> ~~operable~~ to transform the second signal having the second signal type from ~~a~~ <u>the</u> digital signal into ~~an~~ <u>the</u> analog signal.

78. (currently amended) The method of claim 76, wherein:

<u>the method is performed using a first functional block and a second functional block;</u>

the first functional block includes a transport processor that includes a PID (Program Identification) filtering functional block, a PCR (Program Clock Reference) time stamp correction functional block, and a null packet insertion functional block;

the PID filtering functional block is <u>operative</u> ~~operable~~ to throw away data in the first signal having the first signal type;

the PCR time stamp correction functional block is <u>operative</u> ~~operable~~ to keep a time base of the first signal having the first signal type constant;

the null packet insertion functional block is operative ~~operable~~ to insert null packets into the second signal having the second signal type thereby ensuring a constant data rate of the second signal having the second signal type; and

the second functional block includes ~~a~~ the modulator and ~~a~~ the DAC ~~(Digital to Analog Converter)~~ that is operative ~~operable~~ to transform the second signal having the second signal type from ~~a~~ the digital signal into ~~an~~ the analog signal.

79. (original) The method of claim 78, wherein the transport processor is an MPEG-2 (Motion Picture Expert Group, level 2) transport processor.

80. (currently amended) A transcoding processing method, the method comprising:

receiving a first signal having a first signal type ~~from a first functional block~~;

wherein the first signal type includes an 8 PSK (Phase Shift Keying) modulation type, a code rate of 2/3, a symbol rate of approximately 20 Msps (Mega-symbols per second), and a data rate of approximately 40 Mbps (Mega-bits per second)

transcoding the first signal having the first signal type thereby generating a second signal having a second signal ~~type;~~ type, wherein the transcoding including:

employing a satellite receiver to decode the first signal having the first signal type;

employing a modulator, connected to an output of the satellite receiver, to modulate decoded output from the satellite receiver; and

employing a DAC (Digital to Analog Converter), connected to an output of the modulator, to transform the second signal having the second signal type from a digital signal into an analog signal;

wherein the second signal type includes a QPSK (Quadrature Phase Shift Keying) modulation type, a code rate of 6/7, a symbol rate of approximately 20 Msps, and a data rate of approximately 30. 5 Mbps;

outputting the second signal having the second signal type ~~to a second functional block~~; and

wherein the first signal is an LDPC (Low Density Parity Check) coded signal.

81. (currently amended) The method of claim 80, wherein:

<u>the method is performed using a first functional block and a second functional block;</u>

the first functional block includes a satellite receiver that is <u>operative</u> ~~operable~~ to decode the first signal having the first signal type; and

the second functional block includes ~~a~~ <u>the</u> modulator and ~~a~~ <u>the</u> DAC ~~(Digital to Analog Converter)~~ that is <u>operative</u> ~~operable~~ to transform the second signal having the second signal type from ~~a~~ <u>the</u> digital signal into ~~an~~ <u>the</u> analog.

82. (currently amended) The method of claim 80, wherein:

<u>the method is performed using a first functional block and a second functional block;</u>

the first functional block includes a transport processor that includes a PID (Program Identification) filtering functional block, a PCR (Program Clock Reference) time stamp correction functional block, and a null packet insertion functional block;

the PID filtering functional block is <u>operative</u> ~~operable~~ to throw away data in the first signal having the first signal type;

the PCR time stamp correction functional block is <u>operative</u> ~~operable~~ to keep a time base of the first signal having the first signal type constant;

the null packet insertion functional block is <u>operative</u> ~~operable~~ to insert null packets into the second signal having the second signal type thereby ensuring a constant data rate of the second signal having the second signal type; and

the second functional block includes ~~a~~ <u>the</u> modulator and ~~a~~ <u>the</u> DAC ~~(Digital to Analog Converter)~~ that is <u>operative</u> ~~operable~~ to transform the second signal having the second signal type from ~~a~~ <u>the</u> digital signal into ~~an~~ <u>the</u> analog signal.

83. (original) The method of claim 82, wherein the transport processor is an MPEG-2 (Motion Picture Expert Group, level 2) transport processor.